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The Industry and Occupation Incidence of State Mandated Maternity Benefits

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THE INDUSTRY AND OCCUPATION INCIDENCE OF STATE MANDATED MATERNITY BENEFITS

by

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ABSTRACT

Industry and Occupation Effects of State Mandated Maternity Benefits

by

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Government mandates are often used to promote equality in the workplace, often imposing additional costs upon employers. Economic theory suggest that these additional costs will be shifted onto the employees through a reduction in wages. However, when wage shifting is not an option due to anti-discrimination laws, how will employers respond to the additional costs imposed? Gruber (1994) found that wage shifting occurs when the groups benefiting from a government mandate are easily identifiable to the employer, despite the existence of anti-discrimination laws.

This study seeks to further the work of Gruber (1994) and examine wage shifting at an industry level. We look at industries that have a large percentage of workers who are benefited by a government mandate to see if the wage shifting in these industries was more significant. This study finds that, as the percentage of workforce receiving benefits increases, the amount of wage shifting grows.

(38 pages)

PUBLIC ABSTRACT

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Government mandates are often used to promote equality in the workplace, often imposing additional costs upon employers. Economic theory suggest that these additional costs will be shifted onto the employees through a reduction in wages. However, when wage shifting is not an option due to anti-discrimination laws, how will employers respond to the additional costs imposed? Gruber (1994) found that wage shifting occurs when the groups benefiting from a government mandate are easily identifiable to the employer, despite the existence of anti-discrimination laws.

This study seeks to further the work of Gruber (1994) and examine wage shifting at an industry level. We look at industries that have a large percentage of workers who are benefited by a government mandate to see if the wage shifting in these industries was more significant. This study finds that, as the percentage of workforce receiving benefits increases, the amount of wage shifting grows.

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INTRODUCTION

The goal of this paper is to replicate and then expand upon the results found in Gruber (1994). He showed that when benefits to employees are mandated by the government, the additional costs of these benefits are shifted from the company to the employees directly benefiting from the mandate through a reduction in wages. The findings if Gruber (1994) address the workplace, and neglect to delve deeper into industry analysis. It’s possible that industries that have a higher density of workers benefiting from the mandate shift a greater amount of the costs to its employees. This study seeks to further the findings in Gruber (1994) and examine them at the industry level.

Arguments and debates over publicly provided benefits are heard often in the news as government officials try to appease voters. In order to appease the voters, and thus increase chances of re-election, politicians will pass laws that provide voters with desired benefit, such as health insurance. While many people are in favor of governments providing benefits that would otherwise be unavailable, the true economic effects are often unknown or misunderstood. One argument against publicly financed benefits is that they require the government to increase tax revenue in order to fund the program (Summers, 1989). This, in turn, increases the deadweight loss from taxation, or less economic activity and slower rates of growth. An alternative to governments providing benefits programs is to pass laws mandating that employers provide the desired benefits. The advantage to this approach is that it can shift costs from the taxpayers to the owners of private firms. Wages can adjust if employees truly value the benefit being mandated, resulting in what is essentially a lower tax rate and less dead weight loss (Summers, 1989)

In a seminal paper, Gruber (1994) examined the efficiency of group-specific mandates by exploiting a natural experiment conducted when several states passed laws mandating comprehensive maternity insurance coverage. Gruber centered his analysis on three states: Illinois, New Jersey, and New York, all of which had laws mandating comprehensive maternity benefits go into effect between July 1, 1976 and January 1, 1977 (Gruber, 1994). This particular type of mandate presents an interesting issue: theoretically, if employees value the benefit, they pay for it through wage reduction. However, these particular mandates affected an identifiable group, women of childbearing age, who are the primary beneficiaries. Economic theory suggests that these employees will bear a large part of the cost through decreasing wage offers. However, the Equal Pay Act of 1963 prohibits employers from discriminating between employees on the basis of sex; employers cannot pay a lesser wage based on sex, assuming comparable work and performance (The Equal Pay Act of 1963, 2017). When a demographically identifiable group receives benefits, would employers attempt to pass the costs of the benefits on to other employees who cannot claim them (e.q., men or women beyond childbearing age)? Gruber concluded group-specific wage shifting of the costs of the maternity mandates to the groups most affected by the mandate, despite the existence of the Equal Pay Act of 1963.

There is a large literature on the incidence of mandated benefits. Depew and Bailey (2015) show that the ACA's dependent mandate increased health insurance premiums to employers, but they find no discernable differences in employee contributions across plans that should and should not be affected. Lahey (2012) found that infertility treatment mandates decrease wages and employment of women of child-bearing age. Bailey (2013) found wages decrease following the passage of diabetes mandates.

Baum (2003) analyzed the Family and Medical Leave Act of 1993, which guarantees 12 weeks of unpaid leave for eligible mothers, and how it affected employment and wages. Baum hypothesizes some shifting of costs to the group receiving the benefit of the mandate will be observed. While the leave is unpaid, the mandate imposes other costs on employers, such as: hiring and training temporary replacements, productivity losses because temporary workers have less firm-specific human capital, and the lowering of workplace morale if coworkers are required to cover some, or all, of the absent worker's production. Baum's empirical analysis finds that the legislation had a small and statistically insignificant negative effect on wages. While theory suggests that some shifting should occur, Baum offers several possible explanations for why his results do not show significant wage shifting: many firms voluntarily provided maternity leave before the law was passed, the duration of the law's effect is short (12 weeks), because employees who claim the benefit are not paid, many women may have to return to the workplace before the full 12 weeks is at an end, and some otherwise eligible woman may not take maternity leave because they know it will cause promotions and pay increases to be delayed or reduced.

In a study similar to Baum, Edwards (2006) examined the effects of maternity leave legislation on wages in Australia. Edwards finds that nationwide there is a negative wage differential between employees who are eligible and those who are ineligible for maternity leave. The results of this study are in line with what economic theory suggests: that firms will shift the costs of mandates to those who benefit from the mandate.

In another analysis of employment legislation DeLeire (2000) looks at the effect of the Americans with Disabilities Act (ADA); the ADA, much like maternity legislation, affects an easily identifiable group. The ADA mandated that firms provide job accommodations for disabled employees. While this may provide employment opportunities for people with disabilities who are willing to work, it also imposes costs upon firms who employ disabled workers. DeLeire (2000, p. 694) states, "An accommodation that increases the productivity of a disabled worker by more than its cost would be provided voluntarily by firms. Thus, many accommodations required under the ADA represent net costs to firms and may decrease the number of disabled workers these firms choose to employ." The study finds that the ADA led to a 7.2 percentage point reduction in the employment of disabled workers relative to their able-bodied counterparts. The mandate was intended to provide workers with disabilities more opportunities for work; however, the increase in firms' compliance costs led to a result that was opposite the original intent of the mandate.

The purpose of this paper is to build upon the results found in Gruber (1994). In his study Gruber looked at the groups of employees that were most affected by states passing maternity mandates and found that, on a statewide basis, wages were reduced owing to the increased cost of employing the groups receiving the benefits. The paper does not consider that the mandate also affected identifiable industries. The change in the cost of providing insurance to an average employee would be much greater in industries employing large numbers of benefitting individuals, than in industries employing few of the individuals eligible for mandated benefits. Thus, one would expect wage adjustments to be significantly smaller in the latter than in the former. This study will consider relative wage adjustments across industries on the basis of the compositions of their workforces. Intuitively, industries employ high percentages of workers eligible for maternity benefits will shift a greater portion of the cost of complying with comprehensive maternity benefits to the employees than those industries that employ smaller percentages of eligible workers. Workers eligible for maternity benefits are those most likely to have children, and thus require maternity coverage on their insurance. These workers are determined by age, sex, and marital status: married women ages 20 to 40, single women ages 20-40, and married men ages 20-40 are the groups most likely to benefit from comprehensive maternity benefits.

DATA AND MODEL REPLICATION

The data Gruber (1994) used were taken from the May Current Population Survey (CPS) and consist of responses to surveys conducted in the years 1974, 1975, 1977, and 1978. The experimental states in the study all had passed laws mandating comprehensive maternity benefits that went into effect in 1976. Gruber's study is a "before-and-after" comparison of wages paid prior to the mandates (1974-1975) and afterwards (1977-1978); 1976 data does not enter the dataset because mandatory maternity benefit policies became effective then. Gruber identifies three experimental states—Illinois, New Jersey, and New York—which passed maternity benefit mandates in 1976. All three states had maternity mandates in place early enough that the law's effects on wages, if any, would be observed in the 1977 CPS data. The control states in the dataset are: Ohio, Indiana, Connecticut, Massachusetts, and North Carolina. Those states were selected because they are located in geographic regions similar to the treated states, allowing Gruber to capture and control for any regional shocks to employment or wages. The observations in the final dataset include individuals between the ages of 20 and 65. Hourly wages (in 1978 dollars) above $100 or below $1 are dropped, as are self-employed persons. Table 1 presents the means for wage earners in the years before (1974-1975) and after (1977-1978) maternity benefits were mandated:

Table 1

Unweighted Means for all Wage Earners

	Control States		Experimental States	
VARIABLES	Before Law	After Law	Before Law	After Law
Percentage Female	41.3	43.9	41.2	43.2
	(49.2)	(49.6)	(49.2)	(49.5)
Age	38.24	37.71	38.87	38.43
	(12.59)	(12.53)	(12.54)	(12.58)
Percentage Married	75.2	70.9	71.7	68.1
	(43.2)	(45.4)	(45.0)	(46.6)
Percentage Nonwhite	8.80	9.35	10.4	12.1
	(28.3)	(29.1)	(30.5)	(32.6)
Education	12.26	12.51	12.56	12.81
	(2.84)	(2.75)	(2.90)	(2.86)
Average Hourly Wage	5.78	5.69	6.69	6.47
	(3.69)	(3.50)	(4.37)	(3.77)
Percentage Union	27.3	27.0	33.8	34.3
	(44.6)	(44.4)	(47.3)	(47.5)
Percentage Manufacturing	36.6	35.2	28.2	26.7
	(48.2)	(47.8)	(45.0)	(44.2)
Percentage Services	28.7	30.4	34.4	35.5
	(45.3)	(46.0)	(47.5)	(47.8)
Observations	10,065	10,423	10,854	10,865

Notes: The numbers in parentheses are standard deviations. Any individual with wages below $1/hour and above $100/hour are dropped, as were anyone younger than 20 and over 65 or the self-employed. Wages are in constant 1978 dollars.

The means are fairly similar across states and time. It is relevant to note that the wages, in both experimental and control states, dropped slightly after 1976. The control states had larger percentages of workers in manufacturing, while the experimental states had a higher percentage of workers in services. Experimental states also had a higher percentage of workers who were members of a union.

To ensure that this paper accurately builds on the results in Gruber (1994), his empirical methods were applied to the above data for purposes of replication. Gruber (1994) employed a difference-in-difference-in-difference model (DDD). Table 2 displays the results.

Table 2

DDD Estimates of the Impact of State Mandates on Hourly Wages

A. *Treatment Individuals: Married Women, 20-40 years old*:	Before law change	After Law change	Time Difference for location
Experimental States	1.556	1.520	-0.036
	(0.012)	(0.011)	(0.017)
	[1,433]	[1,520]	
Non-Experimental States	1.390	1.415	0.025
	(0.010)	(0.010)	(0.014)
	[1485]	[1670]	
Location Difference at a point in time:	0.166	0.105	
	(0.016)	(0.015)	
Difference in difference	-0.061		
	(0.022)		
B. *Control Group: Over 40 and Single Males 20-40*:			
Experimental States	1.764	1.760	-0.004
	(0.007)	(0.007)	(0.010)
	[5,755]	[5,623]	
Non-Experimental States	1.633	1.636	0.003
	(0.007)	(0.007)	(0.010)
	[5,051]	[5,070]	
Location Difference at a point in time:	0.131	0.123	
	(0.010)	(0.010)	
Difference in difference	-0.008		
	(0.014)		
DDD:	-0.053		
	(0.029)		

The data in this paper returned a DDD estimator of -0.053 (0.029), while Gruber (1994) found the DDD estimator to be -0.054 (0.026). This estimator of -0.053 suggests a 5.3% decrease in the wages of 20 to 40-year-old married women in experimental states, compared to the change in wages in the states that did not pass maternity mandates. These findings show that at least part of the costs of mandated maternity benefits are passed to the benefiting group. Overall, the replication exercise confirms Gruber's original results with a reasonable degree of accuracy.

Both Gruber (1994) and Baum (2003) used a three-way interaction term (often referred to as difference-in-difference-in-difference) to estimate the wage change following the adoption of maternity mandates. The three-way interaction measures the change in wages in a specified treatment group; i.e. states passing such legislation, in order to gauge how mandated benefits affected a specific group of employees. Gruber's original model has been expanded to break down the effects of maternity mandates by the compositions of an industry's workforce. Maternity mandates are mostly likely to affect working women of childbearing age and their husbands, three easily identifiable groups are impacted directly when employers are required to offer such benefits: married women ages 20 to 40, single women ages 20 to 40, and married men ages 20 to 40. Each of these groups is used as the treatment group in separate regressions. The control group consists of workers who, for the most part, are not affected by the mandate: single males ages 20 to 40 and all individuals over the age of 40.

EMPIRICAL MODEL

The main regression equation used in this paper, an extension of the one used by Guber, is given below:

$$(1) \qquad W_{ijt} = \beta_0 + \boldsymbol{\beta_1 X_{ijt}} + \beta_2\tau_t + \beta_3\delta_j + \beta_4 TREAT_i + \beta_5(\delta_j{*}\tau_t) + \beta_6(\tau_t{*}TREAT_i)$$
$$+ \beta_7(\delta_j{*}TREAT_i) + \beta_8(TREAT_i{*}\,\tau_t{*}\delta_j{*}\theta_b) + \beta_9(TREAT_i{*}\,\tau_t{*}\delta_j{*}\theta_a) + e_{ijt}$$

In this equation W is the log of hourly wages. The subscripts i, j, and t represent the individuals, states, and years respectively. The state-specific index, δ_j is 1 if treated, 0 otherwise. The time index, τ_t, is set equal to 0 in the years before 1976, 1 for the years after. The Vector $\boldsymbol{X}$ consists of observed individual characteristics. The variable TREAT is a dummy variable for the treatment group (1 if in treatment group, 0 if in control group). There are 3 treatment groups will be considered: married women ages 20 to 40, single women ages 20 to 40, married men ages 20 to 40. The DDD estimator is broken down using θ_a and θ_b. These are dummy variable determined by the percentage of an industry that is made up of female workers, i.e. θ_a is 1 for all industries where females make up greater than 50% of the workforce, while θ_b is 1 for all industries below 50% female workers, 0 otherwise. Multiplying the DDD estimator by $\theta_a$and $\theta_b$will show if industries made up of large percentages of female workers experience greater wage shifting than industries with smaller percentages of female workers.

To control for unobserved heterogeneity in the dataset individual characteristics are added into the regression in vector $\boldsymbol{X}$. The observable individual characteristics included in vector $\boldsymbol{X}$ are: years of education, experience, the square of experience, a dummy variable for female individuals, a dummy variable for married individuals, and interaction of the female and marital status variables, a dummy for race that is equal to 1 if the individual is not white, and a dummy for union status. Also included in the regression model are controls for 15 major industries, and individual dummies for the years 1974 and 1978. It is expected that years of education, experience, the square of experience, marital status, and union status will all have positive effects on wages. Conversely, female, race, and the interaction of marital status and female are expected to have negative effects on wages. The expected effects are consistent with economic theory and literature.

The regressions were initially run with the original DDD estimator and do not account for the composition of and industry's workforce. These regressions were run for each of the 3 treatment groups. The dependent variable log of weekly hours worked, and employment status were used in addition to the log of hourly wages. The results of these initial regressions can be seen in Table 3.

Table 3

Treatment Group Results -Without Industry Effects

Treatment Group	Log Hourly Wages
Married Women 20-40	-0.0428* (0.0228)
Single Women 20-40	-0.0473* (0.0255)
Married Men 20-40	-0.00444 (0.0184)
All Treatments	-0.0227 (0.0154)

Notes:
1. Standard errors are in parentheses.
2. Coefficient is the third level interaction in the regressions found in tables A1 and A2
3. The control group is all workers over the age of 40 and single males ages 20 to 40.
*** p<0.01, ** p<0.05, * p<0.1

When examining the effect on wages, the third level interaction indicates that married females ages 20 to 40 experienced a 4.3% decrease in wages relative to the control group. Similarly, single females ages 20 to 40 experienced a 4.7% decrease in wages relative to the control group. Married men did not have a statistically significant change in wages relative to the control group in this regression. The other variables in the regressions returned signs consistent with economic theory: education, experience, experience squared, marital status, and union status all had positive effects on hourly wages. In contrast, female, the interaction of female and marital status, and the dummy variable for race all had negative effects on wages. Complete results are given in Table 1 in the Appendix.

RESULTS

The next set of regressions attempt to break down the decreases in wages shown in Table 3. This is done by breaking the original DDD estimator into two parts, above or below a specified percent of female workers in an industry (Appendix Table 2).

The results in Table 4 show the changes in wages for workers in the treatment groups in industries with less than 25% female workers (below break) and for those in industries with more than 25% female workers (above break).

Table 4

Treatment Group Results – Industry Break at 25 Percent Female Workers

Treatment Group	Log Hourly Wages – Below Break	Log Hourly Wages – Above Break
Married Women 20-40	0.0825 (0.0666)	-0.0471** (0.0228)
Single Women 20-40	0.0773 (0.0583)	-0.0508** (0.0256)
Married Men 20-40	0.0876*** (0.0262)	-0.0192 (0.0186)
All Treatments	0.0616*** (0.0234)	-0.0302* (0.0154)

Notes: Standard errors are in parentheses. The coefficient shown here are β_{15} in the equation given above. All regressions returned a R^2 between 0.35 and 0.38. Individual regressions results are available. The Breusch-Pagan test showed that heteroscedasticity was present, this was corrected for by running the regressions using robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

The results in Table 4 show that the treatment groups in industries comprised of relatively few female workers did not see a reduction in wages after the passing of maternity mandates. In fact, married men, ages 20-40, in industries below 25% female workers, saw an 8.76% increase in wages. All other treatment group in industries below the break saw no statistically significant change in wages. It should be noted that although the coefficients are not statistically significant the signs on the coefficients are positive. Conversely, the effects of the maternity mandates on the treatment groups above the break (industries with more than 25% female workers) are greater than those found prior to decomposing the DDD estimator. Married Women ages 20-40, in industries above the break, saw a 4.71% decrease in wages. Single Women ages 20-40 saw a 5.08% decrease in wages.

The regression was run a second time with the industry break at 50% female. Industries with less than 50% female workers are considered below the break, and industries with over 50% female workers are above the break.

Table 5

Treatment Group Results – Industry Break at 50 Percent Female Workers

Treatment Group	Log Hourly Wages – Below Break	Log Hourly Wages – Above Break
Married Women 20-40	0.0147 (0.0255)	-0.0813*** (0.0242)
Single Women 20-40	0.0110 (0.0273)	-0.0927*** (0.0277)
Married Men 20-40	0.0329* (0.0187)	-0.108*** (0.0233)
All Treatments	0.0171 (0.0159)	-0.0748*** (0.0168)

Notes: Standard errors are in parentheses. The coefficient shown here is β_{15} in the equation given above. All regressions returned a R^2 between 0.35 and 0.38. Individual regressions results are available. The Breusch-Pagan test showed that heteroscedasticity was present, this was corrected for by running the regressions using robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

The coefficients in Table 5 suggest that the majority of wage shifting due to maternity mandates occurred in industries comprised of more than 50% female workers. The treatment groups in industries with less than 50% female workers all returned coefficients with a positive sign, with married men ages 20-40 again seeing a statistically significant increase in wages of 3.29%. The treatment groups in industries with more than 50% female workers all experiences statistically significant decreases in wages. Once again, the magnitude of these decreases in greater than prior estimates. In industries with more than 50% female workers married women saw an 8.13% decrease in wages, single women saw a 9.27% decrease in wages, and married men experienced a 10.8% decrease in wages.

A third regression puts the break at industries with less than 75% female defined as below the break, and industries with more than 75% female above the break.

Table 6

Treatment Group Results – Industry Break at 75 Percent Female Workers

Treatment Group	Log Hourly Wages – Below Break	Log Hourly Wages – Above Break
Married Women 20-40	-0.0536** (0.0233)	0.00633 (0.0308)
Single Women 20-40	-0.0523** (0.0258)	-0.0199 (0.0380)
Married Men 20-40	-3.50e-05 (0.0184)	-0.142*** (0.0531)
All Treatments	-0.0265* (0.0154)	0.0100 (0.0229)

Notes: Standard errors are in parentheses. The coefficient shown here is β_{15} in the equation given above. All regressions returned a R^2 between 0.35 and 0.38. Individual regressions results are available. The Breusch-Pagan test showed that heteroscedasticity was present, this was corrected for by running the regressions using robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

The results of this model in Table 6 are not as telling as the prior models. Three of the treatment groups, married women, single women, and the combination of all treatment groups, below the break (industries comprised of 75% female workers) saw a statistically significant decrease in wages. Meanwhile, only married men ages 20-40 above the break saw a statistically significant decrease in wages of 14.2%. The results of this regression are not overly worrying, there are only three industries where female workers comprise more than 75% of the workforce: hospitals, medical except hospitals, and private household services. It is likely that the small number of industries caused the results to be less clear than the previous results.

The models show that industries with a relatively low percentage of female workers experienced less wage shifting than those with higher percentages of female workers. When the DDD estimator was broken down by industries greater than, or less than, 50% female workers the results were most telling. All the treatment groups in in this model saw statistically significant reductions in wages if they were in industries comprised of more than 50% female workers. Married woman ages 20-40 saw an 8.13% decrease in wages, single women ages 20-40 saw a 9.27% decrease, married men ages 20-40 saw a 10.8% decrease in wages. Meanwhile, none of the treatment groups in industries with less than 50% of the workforce being female saw a statistically significant decrease in wages.

While the results with industry controls were good, they might be improved upon by further analysis. The data from the CPS has 23 major industries, however, the occupations within each industry will vary in percentage of workers who are female. The following regressions employ the same theoretic model used above, but instead of controlling for the 23 major industries, the density of female workers is instead accounted for with 45 occupations that are provided in CPS data (see Appendix for table of industry composition).

Table 7

Treatment Group Results -Occupation Break at 25 Percent Female Workers

Treatment Group	Log Hourly Wage – Below Break	Log Hourly Wage – Above Break
Married Women 20-40	-0.0288 (0.0427)	-0.0444* (0.0229)
Single Women 20-40	0.0482 (0.0381)	-0.0610** (0.0258)
Married Men 20-40	0.0496*** (0.0192)	-0.0938*** (0.0209)
All Treatments	0.0149 (0.0170)	-0.0434*** (0.0159)

Notes: Standard errors are in parentheses. The coefficient shown here is β_{15} in the equation given above. All regressions returned a R^2 between 0.35 and 0.38. Individual regressions results are available. The Breusch-Pagan test showed that heteroscedasticity was present, this was corrected for by running the regressions using robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

Table 7 shows that the treatment groups in occupations comprised of relatively few female workers did not see a statistically significant reduction in wages after the passing of maternity mandates. In fact, married men, ages 20-40, in occupations below 25% female workers, saw an 4.96% increase in wages. All other treatment group in industries below the break saw no statistically significant change in wages. Conversely, the effects of the maternity mandates on the treatment groups above the break (occupations with more than 25% female workers) negative and statistically significant. Married Women ages 20-40, in occupations above the break, saw a 4.44% decrease in wages. Single Women ages 20-40 saw 6.1% decrease in wages. Married men ages 20-40 saw a 9.38% decrease in wages.

Table 8

Treatment Group Results – Occupation Break at 50 Percent Female Workers

Treatment Group	Log Hourly Wage – Below Break	Log Hourly Wage – Above Break
Married Women 20-40	-0.00408 (0.0302)	-0.0559** (0.0232)
Single Women 20-40	0.0102 (0.0318)	-0.0677*** (0.0262)
Married Men 20-40	0.0251 (0.0187)	-0.147*** (0.0238)
All Treatments	-0.00170 (0.0163)	-0.0462*** (0.0163)

Notes: Standard errors are in parentheses. The coefficient shown here is β_{15} in the equation given above. All regressions returned a R^2 between 0.35 and 0.38. Individual regressions results are available. The Breusch-Pagan test showed that heteroscedasticity was present, this was corrected for by running the regressions using robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

The coefficients in Table 8 suggest that the majority of wage shifting due to maternity mandates occurred in occupations comprised of more than 50% female workers. The treatment groups in occupations with less than 50% female workers all returned statistically insignificant coefficients. The treatment groups in occupations with more than 50% female workers all experiences statistically significant decreases in wages. The magnitude of these decreases in greater than prior estimates. In occupations with more than 50% female workers married women saw an 5.59% decrease in wages, single women saw a 6.77% decrease in wages, and married men experienced a 14.7% decrease in wages.

CONCLUSION

This paper has shown that industries and occupations with a high percentage of workers receiving the benefits of a government mandate will experience a greater shifting of that cost to the employees via a reduction in wages, than that seen in industries and occupations with a lower percentage of benefited workers. Overall, this seems to go along with intuition and economic theory: firms with a large number of employees receiving benefits have more incentive to shift the cost of those benefits to its employees since its total cost due to the mandate is higher than that of a firm with fewer employees who are benefited by the mandate.

While this does not prove or disprove the efficacy of government mandates it does show that in circumstances where the group receiving the benefit is identifiable, the cost of the mandate is still borne, at least in part, by those who receive the benefit. However, the cost of the mandate may not be shifted the same across industries or occupations, depending on what percentage of the industry or occupation is comprised of individuals benefiting from the mandate.

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APPENDIX

Table 1: Treatment Group Regressions on Log of Hourly Wages – No Industry or Occupation Effects

VARIABLES	Married Females Ages 20-40	Single Females Ages 20-40	Married Males Ages 20-40	All Treatment Groups
Education	0.0669***	0.0648***	0.0667***	0.0687***
	(0.00108)	(0.00112)	(0.000982)	(0.000877)
Experience	0.0234***	0.0297***	0.0333***	0.0272***
	(0.000847)	(0.000873)	(0.000791)	(0.000627)
Experience Squared	-0.352***	-0.454***	-0.503***	-0.407***
	(0.0148)	(0.0152)	(0.0142)	(0.0121)
Female	-0.241***	-0.280***	-0.308***	-0.243***
	(0.0125)	(0.0127)	(0.0123)	(0.00965)
Married	0.189***	0.149***	0.119***	0.131***
	(0.0104)	(0.0105)	(0.0101)	(0.00921)
Female*Married	-0.241***	-0.204***	-0.179***	-0.169***
	(0.0144)	(0.0145)	(0.0142)	(0.0109)
Nonwhite	-0.0483***	-0.0643***	-0.0933***	-0.0648***
	(0.00830)	(0.00820)	(0.00783)	(0.00647)
Union	0.170***	0.162***	0.146***	0.159***
	(0.00518)	(0.00535)	(0.00457)	(0.00409)
“After” Dummy	0.0193**	0.0171*	0.0180**	0.0178**
	(0.00932)	(0.00940)	(0.00911)	(0.00884)
Experimental State	0.100***	0.100***	0.100***	0.100***
Dummy	(0.00794)	(0.00794)	(0.00794)	(0.00795)
Treatment Group	0.116***	0.119***	0.0688***	0.0774***
	(0.0140)	(0.0185)	(0.0117)	(0.00998)
After*Experimental	-0.0129	-0.0113	-0.0101	-0.0123
	(0.0112)	(0.0112)	(0.0112)	(0.0112)
After*Treatment	0.00753	-0.00487	-0.0314**	-0.0121
	(0.0153)	(0.0186)	(0.0128)	(0.0108)
Experimental*	0.0277*	0.0522***	0.00220	0.0182*
Treatment	(0.0165)	(0.0189)	(0.0128)	(0.0109)
After*Experimental*	-0.0428*	-0.0473*	-0.00444	-0.0227
Treatment	(0.0228)	(0.0255)	(0.0184)	(0.0154)
Observations	28,217	26,313	32,516	43,124
R-squared	0.361	0.370	0.354	0.363

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2: Female Workers by Industry

Industry	Total	Females	Percent Female
Mining	165	9	5.45
Railroads and Railway Express	400	24	6.00
Construction	2,832	176	6.21
Forestry and Fisheries	29	6	20.69
Other Transportation	2,110	455	21.56
Wholesale Trade	2,496	644	25.80
Manufacturing Durable Goods	11,148	2,965	26.60
Other Utilities	1,813	558	30.78
Public Administration	3,091	963	31.15
Miscellaneous Services	1,822	660	36.22
Entertainment	425	163	38.35
Manufacturing Non-durable Goods	7,305	2,990	40.93
Agriculture	631	262	41.52
Other Professional Services	1,334	612	45.88
Retail Trade	7,622	3,938	51.67
Finance/Insurance/Real Estate	3,544	1,880	53.05
Welfare Religious	876	523	59.70
Education	5,570	3,555	63.82
Personal, except private household	1,038	678	65.32
Hospitals	2,647	2,015	76.12
Medical Except Hospitals	1,537	1,227	79.83
Never Worked	25,975	21,533	82.90
Private Household Services	539	493	91.47
Totals	84,949	46,329	54.54

Table 3: Treatment Group Regressions on Log of Hourly Wages – Industry Break at 25 Percent Female Workers

	Married Females Ages 20-40	Single Females Ages 20-40	Married Males Ages 20-40	All Treatment Groups
Education	0.0669***	0.0648***	0.0668***	0.0687***
	(0.00108)	(0.00112)	(0.000983)	(0.000877)
Experience	0.0233***	0.0296***	0.0333***	0.0271***
	(0.000847)	(0.000874)	(0.000791)	(0.000627)
Experience Squared	-0.352***	-0.453***	-0.502***	-0.406***
	(0.0148)	(0.0152)	(0.0142)	(0.0121)
Female	-0.240***	-0.280***	-0.308***	-0.242***
	(0.0125)	(0.0127)	(0.0123)	(0.00965)
Married	0.190***	0.149***	0.119***	0.131***
	(0.0104)	(0.0105)	(0.0101)	(0.00921)
Married*Female	-0.241***	-0.205***	-0.180***	-0.169***
	(0.0144)	(0.0145)	(0.0142)	(0.0109)
Non-White	-0.0481***	-0.0642***	-0.0925***	-0.0642***
	(0.00830)	(0.00820)	(0.00783)	(0.00647)
Union	0.170***	0.162***	0.145***	0.158***
	(0.00518)	(0.00535)	(0.00457)	(0.00409)
"After" Dummy	0.0193**	0.0172*	0.0182**	0.0180**
	(0.00932)	(0.00940)	(0.00911)	(0.00884)
Experimental State	0.100***	0.100***	0.101***	0.100***
Dummy	(0.00794)	(0.00794)	(0.00794)	(0.00795)
Treatment Group	0.116***	0.119***	0.0688***	0.0772***
	(0.0140)	(0.0185)	(0.0116)	(0.00998)
After*Experimental	-0.0129	-0.0113	-0.0102	-0.0124
	(0.0112)	(0.0112)	(0.0112)	(0.0112)
After*Treatment	0.00753	-0.00487	-0.0313**	-0.0121
	(0.0153)	(0.0186)	(0.0128)	(0.0108)
Experimental*	0.0276*	0.0522***	0.00212	0.0181*
Treatment	(0.0165)	(0.0189)	(0.0128)	(0.0109)
DDD* Above Break	-0.0471**	-0.0508**	-0.0192	-0.0302*
Dummy	(0.0228)	(0.0256)	(0.0186)	(0.0154)
DDD* Below Break	0.0825	0.0773	0.0876***	0.0616***
Dummy	(0.0666)	(0.0583)	(0.0262)	(0.0234)
Observations	28,217	26,313	32,516	43,124
R-squared	0.361	0.370	0.355	0.364

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Treatment Group Regressions on Log of Hourly Wages – Industry Break at 50 Percent Female Workers

	Married Females Ages 20-40	Single Females Ages 20-40	Married Males Ages 20-40	All Treatment Groups
Education	0.0671***	0.0649***	0.0670***	0.0690***
	(0.00109)	(0.00112)	(0.000982)	(0.000878)
Experience	0.0233***	0.0295***	0.0331***	0.0269***
	(0.000847)	(0.000873)	(0.000791)	(0.000627)
Experience Squared	-0.350***	-0.451***	-0.499***	-0.403***
	(0.0148)	(0.0152)	(0.0142)	(0.0121)
Female	-0.240***	-0.280***	-0.308***	-0.240***
	(0.0125)	(0.0127)	(0.0123)	(0.00965)
Married	0.190***	0.149***	0.120***	0.130***
	(0.0104)	(0.0105)	(0.0101)	(0.00920)
Married*Female	-0.241***	-0.205***	-0.180***	-0.168***
	(0.0144)	(0.0145)	(0.0142)	(0.0109)
Non-White	-0.0476***	-0.0644***	-0.0927***	-0.0642***
	(0.00830)	(0.00820)	(0.00783)	(0.00647)
Union	0.170***	0.162***	0.145***	0.159***
	(0.00518)	(0.00535)	(0.00457)	(0.00409)
“After” Dummy	0.0191**	0.0169*	0.0180**	0.0176**
	(0.00932)	(0.00940)	(0.00911)	(0.00885)
Experimental State Dummy	0.100***	0.100***	0.101***	0.100***
	(0.00794)	(0.00794)	(0.00794)	(0.00796)
Treatment Group	0.116***	0.118***	0.0683***	0.0766***
	(0.0140)	(0.0185)	(0.0116)	(0.00998)
After*Experimental	-0.0130	-0.0113	-0.0102	-0.0124
	(0.0112)	(0.0112)	(0.0112)	(0.0112)
After*Treatment	0.00754	-0.00487	-0.0313**	-0.0122
	(0.0153)	(0.0186)	(0.0128)	(0.0108)
Experimental* Treatment	0.0275*	0.0522***	0.00206	0.0180*
	(0.0165)	(0.0189)	(0.0128)	(0.0109)
DDD* Above Break Dummy	-0.0813***	-0.0927***	-0.108***	-0.0748***
	(0.0242)	(0.0277)	(0.0233)	(0.0168)
DDD* Below Break Dummy	0.0147	0.0110	0.0329*	0.0171
	(0.0255)	(0.0273)	(0.0187)	(0.0159)
Observations	28,217	26,313	32,516	43,124
R-squared	0.362	0.371	0.355	0.364

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Treatment Group Regressions on Log of Hourly Wages – Industry Break at 75 Percent Female Workers

	Married Females Ages 20-40	Single Females Ages 20-40	Married Males Ages 20-40	All Treatment Groups
Education	0.0669***	0.0648***	0.0667***	0.0686***
	(0.00108)	(0.00112)	(0.000982)	(0.000877)
Experience	0.0234***	0.0297***	0.0333***	0.0272***
	(0.000847)	(0.000873)	(0.000791)	(0.000627)
Experience Squared	-0.353***	-0.454***	-0.503***	-0.408***
	(0.0148)	(0.0152)	(0.0142)	(0.0121)
Female	-0.241***	-0.280***	-0.308***	-0.243***
	(0.0125)	(0.0127)	(0.0123)	(0.00965)
Married	0.189***	0.148***	0.119***	0.131***
	(0.0104)	(0.0105)	(0.0101)	(0.00921)
Married*Female	-0.241***	-0.204***	-0.179***	-0.169***
	(0.0144)	(0.0145)	(0.0142)	(0.0109)
Non-White	-0.0488***	-0.0644***	-0.0930***	-0.0652***
	(0.00830)	(0.00819)	(0.00783)	(0.00647)
Union	0.170***	0.162***	0.146***	0.159***
	(0.00518)	(0.00535)	(0.00457)	(0.00409)
"After" Dummy	0.0194**	0.0171*	0.0179**	0.0179**
	(0.00932)	(0.00940)	(0.00911)	(0.00884)
Experimental State Dummy	0.100***	0.100***	0.100***	0.100***
	(0.00794)	(0.00794)	(0.00794)	(0.00795)
Treatment Group	0.116***	0.119***	0.0688***	0.0775***
	(0.0140)	(0.0185)	(0.0116)	(0.00998)
After*Experimental	-0.0129	-0.0113	-0.0101	-0.0123
	(0.0112)	(0.0112)	(0.0112)	(0.0112)
After*Treatment	-0.0129	-0.00487	-0.0314**	-0.0121
	(0.0112)	(0.0186)	(0.0128)	(0.0108)
Experimental* Treatment	-0.0129	0.0523***	0.00218	0.0183*
	(0.0112)	(0.0189)	(0.0128)	(0.0109)
DDD* Above Break Dummy	0.00633	-0.0199	-0.142***	0.0100
	(0.0308)	(0.0380)	(0.0531)	(0.0229)
DDD* Below Break Dummy	-0.0536**	-0.0523**	-3.50e-05	-0.0265*
	(0.0233)	(0.0258)	(0.0184)	(0.0154)
Observations	28,217	26,313	32,516	43,124
R-squared	0.361	0.370	0.354	0.363

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Female Workers by Occupation

Industry	Total	Females	Percent Female
Carpenters	554	0	0.00
Mine Workers	47	0	0.00
Other Construction Craftsman	1,345	6	0.45
Mechanics--Auto	693	4	0.58
Nonfarm Labor Construction	463	5	1.08
Engineers	990	22	2.22
Metal Craftsmen	534	12	2.25
Mechanics, Except Auto	1,240	29	2.34
Machinists & Job Setters	501	12	2.40
All Others	369	9	2.44
Drivers & Deliverymen	1,938	132	6.81
Farmers and Farm Managers	14	1	7.14
Salaried MGR--Manufacturing	1,214	89	7.33
Protective Service	1,048	85	8.11
Foremen	1,264	120	9.49
Nonfarm Labor All Other	1,217	133	10.93
All other Craftsmen	1,703	205	12.04
Physician Dentist Rel. Practitioner	298	44	14.77
Engineering and Science Techs	650	99	15.23
Nonfarm Labor Manufacturing	805	142	17.64
Sales Workers--Other Industries	1,641	296	18.04
Salaried MGR--Other Industries	4,519	1,078	23.85
Motor Vehicles & Equipment	430	104	24.19
Paid Farm Laborers & Foremen	295	78	26.44
Other Prof--Salaried	3,954	1,251	31.64
Cleaning Service	1,497	489	32.67
All Other	1,139	423	37.14
Other Durable Goods	3,997	1,569	39.25
Nondurable Goods	3,005	1,770	58.90
Sales Workers--Retail Trade	1,615	1,016	62.91
Other Clerical Workers	6,283	4,060	64.62
Other Prof--Self Empl	3	2	66.67
Teachers, Except College	2,508	1,701	67.82
Food Service	2,073	1,505	72.60
Office Machine Operators	591	440	74.45
Self-Employed--Other Industries	4	3	75.00
Personal Service	767	584	76.14

Table 6: Female Workers by Occupation

Industry	Total	Females	Percent Female
Never Worked	25,975	21,533	82.90
Self-Employed--Retail Trade	12	10	83.33
Unpaid Family Farm Laborers	161	136	84.47
Health Workers, Except Practitioners	1,296	1,146	88.43
Health Service	1,192	1,061	89.01
Bookkeepers	1,142	1,023	89.58
Steno, Typist, Secretary	3,503	3,447	98.40
Private Household Workers	460	455	98.91
Total	84,949	46,329	54.54

Table 7: Treatment Group Regressions on Log of Hourly Wages – Occupation Break at 25 Percent Female Workers

	Married Females Ages 20-40	Single Females Ages 20-40	Married Males Ages 20-40	All Treatment Groups
Education	0.0669***	0.0647***	0.0668***	0.0686***
	(0.00108)	(0.00112)	(0.000982)	(0.000876)
Experience	0.0234***	0.0296***	0.0331***	0.0271***
	(0.000848)	(0.000873)	(0.000791)	(0.000627)
Experience Squared	-0.352***	-0.454***	-0.500***	-0.405***
	(0.0148)	(0.0152)	(0.0142)	(0.0121)
Female	-0.241***	-0.280***	-0.307***	-0.240***
	(0.0125)	(0.0127)	(0.0123)	(0.00968)
Married	0.189***	0.149***	0.121***	0.130***
	(0.0104)	(0.0105)	(0.0101)	(0.00921)
Married*Female	-0.241***	-0.205***	-0.181***	-0.168***
	(0.0144)	(0.0145)	(0.0142)	(0.0109)
Non-White	-0.0483***	-0.0638***	-0.0922***	-0.0643***
	(0.00830)	(0.00820)	(0.00781)	(0.00647)
Union	0.170***	0.162***	0.146***	0.159***
	(0.00518)	(0.00535)	(0.00457)	(0.00408)
“After” Dummy	0.0193**	0.0171*	0.0182**	0.0179**
	(0.00932)	(0.00940)	(0.00910)	(0.00884)
Experimental State	0.100***	0.100***	0.100***	0.100***
Dummy	(0.00794)	(0.00794)	(0.00794)	(0.00796)
Treatment Group	0.116***	0.119***	0.0677***	0.0765***
	(0.0140)	(0.0185)	(0.0116)	(0.00998)
After*Experimental	-0.0129	-0.0113	-0.0102	-0.0124
	(0.0112)	(0.0112)	(0.0112)	(0.0112)
After*Treatment	0.00753	-0.00488	-0.0314**	-0.0123
	(0.0153)	(0.0186)	(0.0128)	(0.0108)
Experimental*	0.0277*	0.0522***	0.00215	0.0182*
Treatment	(0.0165)	(0.0189)	(0.0128)	(0.0109)
DDD* Above Break	-0.0444*	-0.0610**	-0.0938***	-0.0434***
Dummy	(0.0229)	(0.0258)	(0.0209)	(0.0159)
DDD* Below Break	-0.0288	0.0482	0.0496***	0.0149
Dummy	(0.0427)	(0.0381)	(0.0192)	(0.0170)
Observations	28,217	26,313	32,516	43,124
R-squared	0.361	0.370	0.355	0.364

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Treatment Group Regressions on Log of Hourly Wages – Occupation Break at 50 Percent Female Workers

	Married Females Ages 20-40	Single Females Ages 20-40	Married Males Ages 20-40	All Treatment Groups
Education	0.0669***	0.0647***	0.0667***	0.0686***
	(0.00108)	(0.00112)	(0.000982)	(0.000876)
Experience	0.0233***	0.0296***	0.0331***	0.0271***
	(0.000848)	(0.000873)	(0.000791)	(0.000627)
Experience Squared	-0.352***	-0.453***	-0.500***	-0.406***
	(0.0148)	(0.0152)	(0.0142)	(0.0121)
Female	-0.240***	-0.280***	-0.307***	-0.240***
	(0.0125)	(0.0127)	(0.0123)	(0.00968)
Married	0.190***	0.149***	0.120***	0.130***
	(0.0104)	(0.0105)	(0.0101)	(0.00921)
Married*Female	-0.241***	-0.205***	-0.180***	-0.168***
	(0.0144)	(0.0145)	(0.0142)	(0.0109)
Non-White	-0.0483***	-0.0640***	-0.0919***	-0.0645***
	(0.00830)	(0.00820)	(0.00782)	(0.00647)
Union	0.170***	0.162***	0.147***	0.159***
	(0.00518)	(0.00535)	(0.00457)	(0.00409)
“After” Dummy	0.0192**	0.0171*	0.0182**	0.0178**
	(0.00932)	(0.00940)	(0.00910)	(0.00884)
Experimental State	0.100***	0.100***	0.100***	0.100***
Dummy	(0.00794)	(0.00794)	(0.00794)	(0.00796)
Treatment Group	0.116***	0.119***	0.0679***	0.0766***
	(0.0140)	(0.0185)	(0.0116)	(0.00998)
After*Experimental	-0.0129	-0.0113	-0.0102	-0.0124
	(0.0112)	(0.0112)	(0.0112)	(0.0112)
After*Treatment	0.00754	-0.00488	-0.0313**	-0.0122
	(0.0153)	(0.0186)	(0.0128)	(0.0108)
Experimental*	0.0277*	0.0522***	0.00216	0.0182*
Treatment	(0.0165)	(0.0189)	(0.0128)	(0.0109)
DDD* Above Break	-0.0559**	-0.0677***	-0.147***	-0.0462***
Dummy	(0.0232)	(0.0262)	(0.0238)	(0.0163)
DDD* Below Break	-0.00408	0.0102	0.0251	-0.00170
Dummy	(0.0302)	(0.0318)	(0.0187)	(0.0163)
Observations	28,217	26,313	32,516	43,124
R-squared	0.361	0.370	0.355	0.364

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 9: Treatment Group Regressions on Log of Hourly Wages – Occupation Break at 75 Percent Female Workers

	Married Females Ages 20-40	Single Females Ages 20-40	Married Males Ages 20-40	All Treatment Groups
Education	0.0669***	0.0648***	0.0667***	0.0687***
	(0.00109)	(0.00112)	(0.000982)	(0.000877)
Experience	0.0234***	0.0297***	0.0333***	0.0272***
	(0.000847)	(0.000873)	(0.000791)	(0.000627)
Experience Squared	-0.353***	-0.454***	-0.503***	-0.408***
	(0.0148)	(0.0152)	(0.0142)	(0.0121)
Female	-0.241***	-0.280***	-0.308***	-0.245***
	(0.0125)	(0.0127)	(0.0123)	(0.00966)
Married	0.189***	0.148***	0.119***	0.132***
	(0.0104)	(0.0105)	(0.0101)	(0.00921)
Married*Female	-0.241***	-0.204***	-0.180***	-0.170***
	(0.0144)	(0.0145)	(0.0142)	(0.0109)
Non-White	-0.0486***	-0.0643***	-0.0930***	-0.0650***
	(0.00830)	(0.00820)	(0.00783)	(0.00647)
Union	0.170***	0.162***	0.146***	0.160***
	(0.00519)	(0.00535)	(0.00457)	(0.00409)
"After" Dummy	0.0195**	0.0172*	0.0179**	0.0181**
	(0.00932)	(0.00940)	(0.00911)	(0.00884)
Experimental State	0.100***	0.100***	0.100***	0.100***
Dummy	(0.00794)	(0.00794)	(0.00794)	(0.00795)
Treatment Group	0.116***	0.119***	0.0687***	0.0781***
	(0.0140)	(0.0185)	(0.0116)	(0.00998)
After*Experimental	-0.0129	-0.0113	-0.0101	-0.0123
	(0.0112)	(0.0112)	(0.0112)	(0.0112)
After*Treatment	0.00752	-0.00488	-0.0314**	-0.0120
	(0.0153)	(0.0186)	(0.0128)	(0.0108)
Experimental*	0.0277*	0.0523***	0.00219	0.0183*
Treatment	(0.0165)	(0.0189)	(0.0128)	(0.0109)
DDD* Above Break	0.00730	-0.000299	-0.179***	0.0370**
Dummy	(0.0257)	(0.0289)	(0.0553)	(0.0185)
DDD* Below Break	-0.0691***	-0.0713***	-0.000230	-0.0368**
Dummy	(0.0241)	(0.0268)	(0.0184)	(0.0156)
Observations	28,217	26,313	32,516	43,124
R-squared	0.361	0.370	0.354	0.364

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1